

WHAT IS CLAIMED IS:

1. An accumulation type fuel injection system, comprising:
a common rail for accumulating high-pressure fuel;
an injector for injecting the high-pressure fuel accumulated in the common rail; and
controlling means for controlling the injector in accordance with an operating state of an engine, wherein
the controlling means includes high-temperature combustion predicting means for predicting generation of high-temperature combustion in the engine, and
the controlling means includes combustion slackening means for slackening the combustion in the engine by controlling the fuel injection through the injector when the high-temperature combustion is predicted by the high-temperature combustion predicting means.
2. The accumulation type fuel injection system as in claim 1, wherein the combustion slackening means slackens the combustion by increasing a number of the injections performed with the injector in one injection period without changing total injection quantity, when the high-temperature combustion is predicted by the high-temperature combustion predicting means.
3. The accumulation type fuel injection system as in claim 1, wherein the combustion slackening means slackens the combustion by performing a minute injection and a main

injection through the injector in one injection period, by increasing injection quantity of the minute injection and by decreasing injection quantity of the main injection by the increase in the injection quantity of the minute injection, when the high-temperature combustion is predicted by the high-temperature predicting means.

4. The accumulation type fuel injection system as in claim 1, wherein the combustion slackening means slackens the combustion by performing a minute injection and a main injection through the injector in one injection period and by lengthening an interval between the fuel injections in the one injection period when the high-temperature combustion is predicted by the high-temperature combustion predicting means.

5. The accumulation type fuel injection system as in claim 2, wherein the combustion slackening means performs correction for increasing the number of the injections through the injector if a pressure difference provided by subtracting target pressure suitable for the operating state of the engine from the actual pressure of the common rail exceeds a predetermined value.

6. The accumulation type fuel injection system as in claim 2, wherein the combustion slackening means performs correction for increasing the number of injections through the injector as a basic injection quantity or a target injection quantity

suitable for the operating state of the engine increases.

7. The accumulation type fuel injection system as in claim 3, wherein the combustion slackening means performs correction for increasing the injection quantity of the minute injection if a pressure difference provided by subtracting target pressure suitable for the operating state of the engine from the actual pressure of the common rail exceeds a predetermined value.

8. The accumulation type fuel injection system as in claim 3, wherein the combustion slackening means performs correction for increasing the injection quantity of the minute injection as a basic injection quantity or a target injection quantity suitable for the operating state of the engine increases.

9. The accumulation type fuel injection system as in claim 4, wherein the combustion slackening means performs correction for lengthening the interval between the fuel injections if a pressure difference provided by subtracting target pressure suitable for the operating state of the engine from the actual pressure of the common rail exceeds a predetermined value.

10. The accumulation type fuel injection system as in claim 4, wherein the combustion slackening means performs correction for lengthening the interval between the fuel injections as a basic injection quantity or a target injection quantity

suitable for the operating state of the engine increases.

11. The accumulation type fuel injection system as in claim 1, wherein the high-temperature predicting means predicts the generation of the high-temperature combustion in the engine if a pressure difference provided by subtracting target pressure suitable for the operating state of the engine from actual pressure of the common rail is greater than a predetermined determination threshold and a condition for performing the fuel injection through the injector is established.